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(54) PRINTING INF FOR BIODEGRADABLE PLASTIC FILM

(57)Abstract:

PROBLEM TO BE SOLVED: To prepare a printing ink which dose not pollute an environment in the case of disposing of a printed biodegradable plastic film into the environment.

SOLUTION: The printing ink for the biodegradable plastic film comprises chlorophylline-based pigments, shellac and an ethanol/water mixed solvent.

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CLAIMS

[Claim(s)]

[Claim 1]Printer's ink for biodegradable plastic films consisting of chlorophyllin system coloring matter, a shellac, and ethanol / water partially aromatic solvent.

[Claim 2]The printer's ink according to claim 1 which blends calcium carbonate 5 to 25% into ink.

[Claim 3]The printer's ink according to claim 1 whose printer's ink is gravure ink or flexo ink.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[Field of the Invention]More particularly, this invention relates to printer's ink with few environmental impacts about printer's ink.

[Description of the Prior Art]The image as color showing environmental protection is established socially, and green is working by the name by which many organizations

include the word of "green" and "green." In order to promote environmental protection, the emblem to which it was green and was painted is used, and printing such an emblem for a product to the product in which correspondence of environmental protection was made is performed. However, that for which conventional green printer's ink used Phthalocyanine Green was almost the case. Phthalocyanine Green was having chemical structure which high-chlorinated the copper-phthalocyanine ring, and even if it neglected it in environment, since biodegradability was being hardly not only expectable but quality of a chlorine inclusion, when it destroyed by fire, it may have generated the human-body-presence damage substance depending on the condition. Although the modified resin which uses natural products, such as synthetic resins, such as urethane resin, an acrylic resin, and an alkyd resin, or rosin modified phenolic resin, and a nitrocellulose, as a raw material is used, the binder of printer's ink, As for the resin used for these binders, biodegradability is hardly accepted. On the other hand, a biodegradable plastic has the resolvability over a microorganism and application development to a garbage bag, a checkout bag, etc. is furthered taking advantage of the feature of being a raw material with small load to environment as compared with a synthetic resin film. The emblem may be printed by the surface when it is authorized that such biodegradation plastic film products are eco-friendly. However, when the biodegradable plastic film products in which printing was performed were discarded in the ground, the biodegradable plastic film was disassembled and it disappeared, but since a printing ingredient did not have biodegradability, it had the problem of being accumulated in environment.

[Problem(s) to be Solved by the Invention] This invention provides the anxious printer's ink of environmental pollution which is not, even if the biodegradable plastic to which printing was performed is discarded by environment.

[Means for Solving the Problem] This invention relates to printer's ink for biodegradable plastic films consisting of chlorophyllin system coloring matter, a shellac, and ethanol / water partially aromatic solvent.

[Embodiment of the Invention] The chlorophyllin system coloring matter of this invention is a green pigment of natural product origin, and there are sodium copper-chlorophyllin, sodium iron-chlorophyllin, etc. The shellac of this invention has a preferred thing of specific gravity 1.02-1.12, the saponification 185-290, the acid values 75-105, and iodine value 8.0-15.0. If the ethanol / water partially aromatic solvent of this invention are ranges which dissolve chlorophyllin system coloring matter and a shellac, it will not be restricted, but as for the mixing ratio, it is preferred that ethanol:water is 30-70:70-30 in a weight ratio. The ingredient which has compatibility

in shellacs, such as propylene glycol and glycerin, can be blended with the printer's ink of this invention. As for the printer's ink of this invention, it is preferred to prepare pH in the range of 6.5-9 by ammonia, sodium hydroxide, etc. in order to raise the solubility of shellac. However, ammonia transpires in process of a mothball and processing, resin deposits, PH fall is caused, and it becomes a factor of version ***** of a gravure plate. It becomes ink which mixes calcium carbonate 5 to 25% in order to prevent this, and is stable by distributing. As for each combination ingredient of the printer's ink of this invention, what consists of 3 to 15 % of the weight of chlorophyllin system coloring matter, 10 to 30 % of the weight of shellac, 15 to 70 % of the weight of solvents, propylene glycol, or 1 to 5 % of the weight of glycerin is preferred. With the biodegradable plastic concerning this invention, poly (3-hydroxybutanoic acid), Poly (3-hydroxybutanoic acid-co-3-hydroxyvaleric acid), polycaprolactone, There are polybutylene succinate, poly (butylene succinate co-horse mackerel peat), polyethylene succinate, polylactic acid, polyvinyl alcohol, starch and polyvinyl alcohol, starch / denaturation polyvinyl alcohol, etc. In this invention, what carried out film shaping of these biodegradable plastics at 10-30 micrometers is used. As for the printer's ink of this invention, it is preferred to be printed by the photogravure method or a flexo method on a biodegradable plastic.

[Example]Hereafter, an example explains this invention. A weight section is expressed as a part among an example, and weight % is expressed as %, respectively.

Example 1 sodium-copper-chlorophyllin eight-copy ion exchange water 35 copy ethanol 34 copy shellac 20 copy propylene glycol 2 copy 25% ammonia solution The raw material of one or more copies was mixed, it dissolved, and printer's ink was obtained. When this printer's ink was printed on the polybutylene succinate film with the photogravure printing machine of 25-35 micrometers of version ****, the printed matter which it has in practical peel strength was obtained.

Example 2 sodium-iron-chlorophyllin ten-copy ion exchange water 35 copy ethanol 32.5 copy shellac 20 copy propylene glycol 2 copy sodium hydroxide The raw material of 0.5 or more copies was mixed, it dissolved, and printer's ink was obtained. When this printer's ink was printed on the polybutylene succinate horse mackerel peat film with the photogravure printing machine of 25-35 micrometers of version ****, the printed matter which it has in practical peel strength was obtained.

20 copies of example 3 sodium-copper-chlorophyllin eight-copy ion-exchange-water 29-copy ethanol 29-copy shellac 25% ammonia solution 1 copy propylene glycol 1 copy calcium carbonate The raw material of 12 or more copies was mixed, distributed and dissolved, and ink was obtained. When this printer's ink was printed to polybutylene

succinate with the photogravure printing machine of 25-35 mm of version **, the ink performance which did not start version *****, either but was excellent in stability was checked, and the printed matter which has practical tape peel strength was obtained.

[Effect of the Invention]The printer's ink for biodegradable plastic films of this invention, Since colorant and the binder of natural product origin are made into the constituent, even if decomposition may follow a printer's ink ingredient simultaneously even if a biodegradable plastic product is discarded in environment, or it may remain in environment, it does not have an adverse effect on a human body at all.

[Translation done.]